

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application:

- 1 1. (Currently Amended) A storage device comprising:
2 a storage medium having plural storage cells; and
3 a probe to scan across a surface of the storage medium to program the storage cells,
4 wherein the probe is adapted to selectively program each storage cell to one of more than
5 two storage states, the probe to selectively program each storage cell to have a dent having one
6 of plural depths that represent at least two of the storage states, and
7 wherein the probe is operable to contact a surface of the storage medium to read a storage
8 state of at least one storage cell during a read operation.
- 1 2. (Cancelled)
- 1 3. (Currently Amended) The storage device of claim [[2]] 6, wherein absence of a
2 perturbation in a storage cell represents one other, different storage state.
- 1 4. (Original) The storage device of claim 3, wherein the perturbation comprises a dent, and
2 wherein the probe is adapted to selectively form the dent to have one of at least two
3 depths for representing the at least two storage states.
- 1 5. (Original) The storage device of claim 4, wherein absence of the dent in a storage cell
2 represents the one other storage state.

1 6. (Currently Amended) ~~The storage device of claim 2,~~ A storage device comprising:
2 a storage medium having plural storage cells; and
3 a probe to scan across a surface of the storage medium to program the storage cells,
4 wherein the probe is adapted to selectively program each storage cell to one of more than
5 two storage states,
6 wherein the probe is adapted to program at least one of the storage cells by generating a
7 perturbation in the at least one storage cell,
8 the probe to selectively cause the perturbation to have one of at least two properties for
9 representing at least two corresponding storage states,
10 wherein the storage medium has plural layers, the plural layers having different
11 characteristics to enable selective creation of the perturbation to have one of the at least two
12 properties.

1 7. (Original) The storage device of claim 6, wherein the plural layers have different melting
2 points.

1 8. (Original) The storage device of claim 7, wherein the perturbation comprises a dent, and
2 wherein the probe has a tip heatable to different temperatures to enable formation of the
3 dent having different depths by melting through selected one or more of the plural layers.

1 9. (Original) The storage device of claim 8, wherein the dent having a first depth represents
2 a first storage state, and the dent having a second depth represents a second state, and
3 wherein absence of the dent in a storage cell represents a third storage state.

1 10. (Original) The storage device of claim 9, wherein the dent having a third depth
2 represents a fourth storage state.

1 11. (Original) The storage device of claim 6, wherein the plural layers have different tensile
2 strengths.

1 12. (Original) The storage device of claim 11, wherein the perturbation comprises a dent,
2 and
3 wherein the probe is adapted to apply different forces to enable formation of the dent
4 having different depths by breaking through or deforming selected one or more of the plural
5 layers.

1 13. (Original) The storage device of claim 1, wherein the storage medium and probe are
2 moveable with respect to each other to enable the probe to scan across the surface of the storage
3 medium.

1 14. (Original) The storage device of claim 13, further comprising an actuator to move the
2 storage medium.

1 15. (Currently Amended) A system comprising:
2 a processor;
3 a storage device comprising:
4 a storage medium; and
5 a probe to selectively form a dent to have one of at least two depths in the storage
6 medium,
7 wherein absence of the dent represents a first storage state, and the at least two depths of
8 the dent represent at least two other storage states,
9 the probe to contact a surface of the storage medium to perform a read.

1 16. (Original) The system of claim 15, wherein the storage medium contains plural storage
2 cells, and the probe is adapted to form a dent having a first one of the depths in a first storage
3 cell, and to form a dent having a second one of the depths in a second storage cell.

1 17. (Original) The system of claim 16, wherein another one of the storage cells does not
2 have a dent.

- 1 18. (Original) The system of claim 15, wherein the storage medium has plural layers, the
2 plural layers having different melting points to enable selective formation of the dent to one of
3 the at least two depths.
- 1 19. (Original) The system of claim 18, wherein the probe is heatable to a first temperature to
2 form the dent to have a first depth, and the probe is heatable to a second, greater temperature to
3 form the dent to have a second depth greater than the first depth.
- 1 20. (Original) The system of claim 19, wherein the probe is heatable to a third temperature
2 greater than the first temperature to form the dent to have a third depth greater than the second
3 depth.
- 1 21. (Original) The system of claim 15, wherein the storage medium has plural layers, the
2 plural layers having different tensile strengths to enable selective formation of the dent to one of
3 the at least two depths.
- 1 22. (Original) The system of claim 21, wherein the probe is adapted to apply a first force to
2 form the dent to have a first depth, and wherein the probe is adapted to apply a second, greater
3 force to form the dent to have a second depth greater than the first depth.
- 1 23. (Original) The system of claim 15, wherein the dent includes a first dent, and wherein
2 the storage device includes at least another probe to selectively form a second dent in the storage
3 medium to have one of at least two depths,
4 wherein the storage medium defines plural storage cells, the first dent formed in a first
5 one of the storage cells, and the second dent formed in a second one of the storage cells.
- 1 24. (Original) The system of claim 15, wherein the probe comprises a nanotechnology
2 probe.

1 25. (Currently Amended) A method of storing data, comprising:
2 storing data in storage cells defined in a storage medium; ~~[[and]]~~
3 programming, with a probe, the storage cells to respective storage states,
4 wherein each storage cell is selectively programmable by the probe to one of more than
5 two storage states by selectively programming the storage cell to have a dent having one of
6 plural depths that represent at least two of the storage states; and
7 during a read operation, contacting the probe to a surface of the storage medium to read a
8 storage state of at least one storage cell.

1 26. (Currently Amended) ~~The method of claim 25;~~ A method of storing data, comprising:
2 storing data in storage cells defined in a storage medium; and
3 programming, with a probe, the storage cells to respective storage states,
4 wherein each storage cell is selectively programmable by the probe to one of more than
5 two storage states,
6 wherein programming the storage cells comprises forming a perturbation in at least one
7 storage cell,
8 wherein forming the perturbation comprises selectively forming the perturbation to have
9 one of at least two properties for representing at least two corresponding storage states,
10 wherein the storage medium has plural layers having different characteristics,
11 wherein selectively forming the perturbations to have one of the at least two properties is
12 based on the different characteristics of the plural layers.

1 27. (Currently Amended) The method of claim ~~[[26]]~~ 25, further comprising the probe
2 programming another one of the storage cells by not forming a ~~perturbation~~ dent in the another
3 one of the storage cells,
4 wherein absence of a ~~perturbation~~ dent in the ~~at least~~ another one of the storage cells
5 represents another storage state different from the at least two storage states.

1 28. (Currently Amended) The method of claim ~~[[27]]~~ 26, wherein forming the perturbation
2 comprises forming a dent.

1 29. (Original) The method of claim 28, wherein forming the dent comprises selectively
2 forming the dent to have one of at least two depths for representing the at least two storage
3 states.

1 30. (Original) The method of claim 28, wherein forming the dent comprises forming the dent
2 to selectively have at least one of three depths.

1 31. (New) The method of claim 25, further comprising the probe engaging a dent of a
2 storage cell during the read operation.

1 32. (New) The storage device of claim 1, wherein absence of a dent in a storage cell
2 represents one other, different storage state.